

**50 CFR Part 17**

RIN 1018-AB42

**Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for the Winged Mapleleaf Freshwater Mussel****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Proposed rule.

**SUMMARY:** The Service proposes to determine endangered status for the winged mapleleaf (*Quadrula fragosa*) and thereby provide the species protection under the Endangered Species Act of 1973, as amended (Act). Historically, this freshwater mussel occurred extensively in the Mississippi, Tennessee, Ohio and Cumberland river drainages in the states of Ohio, Indiana, Missouri, Tennessee, Kansas, Nebraska, Iowa, Illinois, Wisconsin, Oklahoma and Kentucky. As a result of land use changes, river alterations and pollution, the winged mapleleaf mussel has been

reduced to a single known population located in the St. Croix River between northwestern Wisconsin and east-central Minnesota. Critical habitat is not being proposed. The Service seeks data and comments from the public on this proposal.

**DATES:** Comments from all interested parties must be received by October 5, 1990. Public hearing requests must be received by September 20, 1990.

**ADDRESSES:** Comments and materials concerning this proposal should be sent to the Regional Director, U.S. Fish and Wildlife Service, Federal Building, Ft. Snelling, Twin Cities, Minnesota 55111. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

**FOR FURTHER INFORMATION CONTACT:** James M. Engel, Endangered Species Coordinator at the above address (612/725-3276 or FTS 725-3276).

**SUPPLEMENTARY INFORMATION:****Background**

The earliest record of the winged mapleleaf (*Quadrula fragosa*) dates from 1835 when Conrad (1835) described this North American freshwater mussel from the Scioto River, Ohio. He described this species as similar to the mapleleaf (*Quadrula*), but "much more

ventricose" having more prominent tubercles and being very distinct. Occurrence records of the winged mapleleaf were reported not infrequently until about 1920. From the 1920's to the present, few occurrences were reported and some experts considered it extinct. These few post 1920 occurrence records include the collection of three specimens from Wayland, Missouri. (The Ohio State Museum of Zoology collection) possibly as late as 1968 and a small extant population from the St. Croix River which borders Minnesota and Wisconsin (Doolittle 1988). Records suggest that the St. Croix River population is the only extant population remaining.

The winged mapleleaf is closely related to and morphologically similar to the mapleleaf, a ubiquitous species of eastern North America. The winged mapleleaf can be distinguished using several characteristics. The shell is more inflated and more quadrate in outline. The shell's beaks are more elevated and turned forward over the lunule (Baker 1928). The winged mapleleaf is more alate and has ridges on the alae while the mapleleaf often has distinct pustules (David H. Stansbery, Ohio State University, personal communications, 1989). An additional characteristic that

may aid in distinguishing these two mussels is microhabitat. The winged mapleleaf seems to occupy riffles, while the mapleleaf is a mud-loving species. Ortmann (1925) suggested that the winged mapleleaf prefers gravel bars in the Duck River of Tennessee. David Heath (Wisconsin Department of Natural Resources, personal communications 1989) found the winged mapleleaf in riffle habitat in the St. Croix River, between Minnesota and Wisconsin, and absent from muddy microhabitat. In contrast, the mapleleaf is known to exploit mud substrata and impoundments (Ortmann 1925, La Rocque 1967, Fuller 1980a).

Little is known about the ecology and habits of the winged mapleleaf, presumably because of its historic rarity and early population reductions. Baker (1928) reported it occupied larger rivers on a mud bottom in water 2 meters or more in depth. Ortmann (1925) indicated it may prefer gravel bars. Recent observation on the extant population (Heath, pers. comm.) indicated that it prefers gravel bars in shallow, clear water of a large river.

Few historical records exist that report population demographics or brooding period of the winged mapleleaf. Recent attempts have been made to determine when the winged mapleleaf broods young. No individuals have been observed brooding young. In addition, in a sample of 41 specimens, none were collected that were younger than four years of age (Heath and Rasmussen 1990). Population density at the only known location was one individual per 52 square meters and constituted less than 0.02% of the mussel community.

A fairly rich mussel assemblage of 32 species inhabit the extant winged mapleleaf site. Most associates are fairly common species in the upper Mississippi River system, but several species are considered rare. These rare species, which are characteristic of well preserved streams, include the Federal category 2 spectacle case (*Cumberlandia monodonta*) and salamander mussel (*Simpsonia ambigua*) and the Federally endangered Higgins' eye (*Lampsilis higginsii*). Other rare species that co-occur include the snuffbox (*Epioblasma triquetra*), purple wartback (*Cyclonaias tuberculata*), and buckhorn (*Tritoginia verrucosa*).

The historic geographic range of the winged mapleleaf is fairly well documented. It occurred in at least eleven states; Ohio, Indiana, Missouri, Tennessee, Kansas, Nebraska, Iowa, Illinois, Wisconsin, Oklahoma, and Kentucky. Disregarding the single

known extant population, nearly all collections were made prior to 1925.

Simpson (1900, 1914) and La Rocque (1967) reported the winged mapleleaf from the Ohio, Cumberland, and Tennessee rivers systems west probably to Minnesota, Nebraska and Kansas. It was reported from the Ohio River by the Commonwealth of Kentucky Department of Fish and Wildlife Resources (1989), Sterki (1907), Coker (1921), Call (1896, 1900), Simpson (1900, 1914), La Rocque (1967), Stansbery (1985, 1989), and vouchered in the United States National Museum (USNM) collection. Ohio River tributaries where the winged mapleleaf was reported include the Scioto River (Conrad 1935, the Ohio State University Museum of Zoology [OSUMZ] collection), the Licking River (Commonwealth of Kentucky State Natural Preserves Commission 1989, Commonwealth of Kentucky Department of Fish and Wildlife Resources 1989), Raccoon Creek (OSUMZ collection, USNM collection, La Rocque 1967) and the White River (Call 1896, Academy of Natural Sciences of Philadelphia [ANSP] collection).

Within the Tennessee River system, collections have been reported from the Tennessee River (Ortmann 1925, Starnes and Bogan 1988), the Cumberland River (Wilson and Clarke 1914, Danglede 1914, Starnes and Bogan 1988, Commonwealth of Kentucky State Natural Preserves Commission 1989, Commonwealth of Kentucky Department of Fish and Wildlife Resources 1989), the Harpeth River (Starnes and Bogan 1988), and from the Duck River (Ortmann 1925, Starnes and Bogan 1988).

In the upper Mississippi River system, it has been reported from the Mississippi River (Utterback 1915-1916, Stansbery 1989, Frest 1987, Grier and Mueller 1922-1923, Shimek 1888, 1921, Field Museum of Natural History [FMNH] collection, OSUMZ collection, Illinois Natural History Survey [INHS] collection, USNM collection, Keys 1889, Havlik and Stansbery 1977, Havlik and Marking 1980, Heath 1981-1985, Bell Museum of Natural History [BMNH] collection). Upper Mississippi River tributaries containing winged mapleleaf included the Cedar River (Frest 1987, Shimek 1888, FMNH collection, OSUMZ collection, USNM collection); the Des Moines River (Keyes 1889); the Raccoon River; the Iowa River (Keyes 1889); the Illinois, Kaskaskia, and Spoon Rivers (Grier and Mueller 1922-1923, Baker 1906; FMNH collection, ANSP collection, Starrett 1971, and Strode 1891, 1892); and the Sangamon River (OSUMZ collection, ANSP collection, University

of Michigan Museum of Zoology [UMMZ] collection, INHS collection). Additional upper Mississippi River drainage locales where the winged mapleleaf have been recorded include the Wisconsin and Baraboo Rivers (Baker 1928, Morrison 1929, Heath 1986b, FMNH collection, BMNH collection, OSUMZ collection), the Minnesota River (Havlik 1990, OZMUZ collection, BMNH collection), and the St. Croix River (Heath 1985, University of Illinois Museum of Natural History [UIMNH] collection).

In Oklahoma, the winged mapleleaf occurred in the Boggy, Little, and Neosho Rivers (Isley 1925) and in Nebraska in the Bow and Blue Rivers (Aughey 1877). Missouri records were from the Osage, Fox, and 102 (at St. Joseph) Rivers (Utterback 1915-1916, OSUMZ collection). Kansas records were from the Fall River and Soldier Creek (Popenoe 1885, Scammon 1906, Murry, and Leonard 1962).

#### Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the listing provision of the Act set forth the procedures for adding species to the Federal lists. A species may be determined to be endangered or threatened according to one or more of the five factors described in section 4(a)(1). These factors and their application to the winged mapleleaf (*Quadrula fragosa*) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* Historically, the winged mapleleaf freshwater mussel was known from twelve states and three major drainage systems in North America. This species has been eliminated from 99% of its historic range. At present, only a single small population is known to remain. Habitat modification including land use changes, river channel modifications, and pollution are the primary factors threatening the continued existence of the winged mapleleaf. The species was usually found in well preserved large to medium-sized clear-water streams in riffles or on gravel bars. These areas have been lost due to the development of impoundments, channelization, soil erosion, and sediment accumulation originating from land use practices.

The single remaining population is small, located on less than five miles of the St. Croix River within a National Scenic Riverway administered by the United States National Park Service

(NPS) which separates Wisconsin and Minnesota. Additional threats to this small population include expanded agriculture or modified land use practices in the watershed, toxic substance spills, point discharges of harmful chemicals, low water levels, and large recreational boat traffic. The small size of the population makes it particularly vulnerable to single catastrophic events and genetic deterioration. These factors may affect the host fish (presently unknown) which is necessary for the reproduction of the winged mapleleaf in addition to affecting the remaining mussel population.

**B. Overutilization for commercial, recreational, scientific, or educational purposes.** Collection of the winged mapleleaf for these purposes is believed to have been a minor factor in its decline. It was harvested during the early 1900's for the pearl button industry in the United States (Coker 1921), but at present the remaining population is protected from harvest by state harvesting laws and scientific collection permits. Some illegal recreational collecting probably does occur.

**C. Disease or predation.** No disease or predation have been recorded for the winged mapleleaf.

**D. The inadequacy of existing regulatory mechanisms.** The winged mapleleaf is presently protected by one of the two states it presently inhabits. The Act offers possibilities for additional protection through section 6 by cooperation between States and the Service, and cooperation through section 7 (interagency cooperation) requirements, in particular with the NPS St. Croix National Scenic Riverway.

**E. Other natural or manmade factors affecting its continued existence.** The single remaining population is small, located on less than five miles of the St. Croix River and is immediately threatened by lack of any reproduction. During surveys in 1988 and 1989, Heath and Rasmussen (1990) were unable to locate individuals less than four years of age although members of related species in the genus *Quadrula* were collected that were less than four years of age. In addition, they were unable to locate any winged mapleleaf individuals brooding young. Lack of young individuals and brooding females could be a natural cyclic phenomenon, an artifact of sampling, or an abrupt cessation of reproduction, but other mussels at the location did not evidence reproductive problems. If recent observations reflect trends in the population, the continued existence of the species is in serious doubt.

During the fall of 1989, extremely low water levels, in part caused by the operation of a hydroelectric dam located immediately upstream of the population, partially dewatered the winged mapleleaf's habitat. At present, the extent of damage to the population is unknown, but mortality may have occurred. Future dewatering of this habitat, compounded by predicted low water levels from the "green house effect," threaten the continued existence of the species.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to propose this rule. Based on this evaluation, the preferred action is to list the winged mapleleaf as an endangered species. Due to the threats and vulnerability of the single remaining population, it is believed that the species will continue to decline unless immediate corrective actions are taken. For reasons detailed below, it is not considered prudent to propose designation of critical habitat.

#### Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary propose critical habitat at the time the species is proposed to be endangered or threatened. The Service finds that designation of critical habitat is not presently prudent for the winged mapleleaf freshwater mussel. This determination is based on the premise that such designation would not be beneficial to the species (50 CFR 424.12), and little additional benefit would be gained, since the single extant location is presently receiving protection from the NPS and the State of Wisconsin. Critical habitat designation would not provide additional protection over that afforded through the normal section 7 consultation procedures. The NPS and the States of Minnesota and Wisconsin are cognizant of the location of this population of winged mapleleaf and of the importance of protecting its habitat.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the

States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibition against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) requires agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. The NPS administers the portion of the St. Croix River where the winged mapleleaf is found. The Service has not identified any ongoing or proposed NPS projects that could affect this species.

The Act and its implementing regulation found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take (included harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect; or to attempt any of these), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

The Act and 50 CFR 17.22 and 17.23 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in connections with otherwise lawful activities. In some

instances, permits may be issue for a specified time to relieve undue economic hardship that would be suffered if such relief were not available.

#### Public Comments Solicited

The Service intends that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule are hereby solicited. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to the winged mapleleaf;

(2) The location of any additional populations of this species and the reasons why any habitat should or should not be determined to be critical habitat as provided by Section 4 of the Act;

(3) Additional information concerning the range, distribution, and population size of this species;

(4) Current or planned activities in the subject area and their possible impacts on this species.

Final promulgation of the regulation on the winged mapleleaf will take into consideration the comments and any

additional information received by the Service, and such communications may lead to a final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if required. Requests must be received within 45 days of the date of publication of the proposal. Such requests must be made in writing and addressed to (see **ADDRESSES** section above).

#### National Environmental Policy Act

This Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

#### References Cited

A complete list of all references cited herein, as well as others, is available upon request from (see **ADDRESSES** above).

#### Author

The primary author of this proposed rule is William F. Harrison (see **ADDRESSES** section). Mr. David J. Heath,

Wisconsin Department of Natural Resources, Rhinelander, Wisconsin 54501 (715) 362-7616, provided substantial information.

#### List of Subjects in 50 CFR Part 17

Endangered and threatened species. Exports, Imports, Reporting and record-keeping requirements, and Transportation.

#### Proposed Regulation Promulgation

Accordingly, it is hereby proposed to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

#### PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

**Authority:** 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1543; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

2. It is proposed to amend § 17.11(h) by adding the following, in alphabetical order under CLAMS, to the List of Endangered and Threatened Wildlife:

#### § 17.11 Endangered and threatened wildlife.

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(h) \* \* \*

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
CLAMS							
Mussel, winged mapleleaf.....	<i>Quadrula fragosa</i> .....	U.S.A. (WI, IL, MN, KS, MO, OH, NE, TN, KY, IN, IA, OK).	NA.....	E	.....	NA	NA

Dated: July 18, 1990.

James C. Leupold,

Director, Fish and Wildlife Service.

[FR Doc. 90-18234 Filed 8-3-90; 8:45 am]

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